Virology

Volume 188 1992

EDITORS

W. K. Joklik, EDITOR-IN-CHIEF
J. R. Nevins J. K. Rose

T. Hunter

A. O. Jackson

A. Berk J. G. Shaw

M. J. Buchmeier B. Sugden R. Haselkorn M. D. Summers M. M.-C. Lai P. K. Vogt

ASSOCIATE EDITORS

P. Ahlquist J. H. Elder R. Ahmed S. Emerson G. Air L. W. Enquist A. K. Baneriee M. Feiss B. N. Fields C. Basilico T. Ben-Porat J. B. Flanegan K. I. Berns S. J. Flint G. W. Blissard W. R. Folk T. J. Braciale D. A. Galloway E. P. Geiduschek P. Brown G. Bruening W. Gibson Carstens R. M. Goodman B. J. Carter R. Goorha L. T. Chow D. E. Griffin J. M. Coffin B. H. Hahn A. M. Colberg-Poley E. Harlow R. W. Compans M. Hayman R. C. Condit P. Hearing J. A. Cooper M. S. Horwitz S. Dales M. M. Howe J. M. Dalrymple S. H. Hughes D. DiMaio R. Hull P. C. Doherty E. Hunter

W. G. Dougherty

J. J. Dunn

E. Ehrenfeld

J. E. Johnson R. E. Johnston J. D. Keene E. Kieff D. F. Klessig D. M. Knipe H.-J. Kung L. A. Laimins R. A. Lamb J. S. Lipsick D. M. Livingston G. P. Lomonossoff P. A. Luciw R. B. Luftig J. Majors P. L. Marion W. Mason G. McFadden J. E. Mertz E. S. Mocarski, Jr. P. Model E. Moran

T. J. Morris G. Morrison B. Moss R. W. Mover S. A. Moyer F. A. Murphy R. Nusse D. J. O'Callaghan P. Offit R. A. Owens P. Palese P. Palukaitis E. Paoletti J. T. Parsons C. D. Pauza G. N. Pavlakis M. E. Peeples S. Perlman S. Pestka R. F. Pettersson D. J. Pickup P. M. Pitha-Rowe

R. D. Possee L. E. Post M. L. Privalsky V. Racaniello R. F. Ramig L. Ratner H. R. Revel C. M. Rice H. L. Robinson G. F. Rohrmann B. Roizman C. Rosen L. B. Rothman-Denes C. E. Samuel P. A. Schaffer B. S. Schaffhausen R. Schlegel C. Schmaljohn J. E. Schoelz M. Schubert C. Seeger B. M. Sefton B. L. Semler K. V. Shah P. R. Shank

J. Sodroski D. H. Spector J. Stanley M. F. Stinski V. Stollar S. E. Straus J. H. Strauss D. F. Summers J. W. Summers M. M. Susskind R. I. Swanstrom R. H. Symons P. Tattersall M. J. Tevethia S. S. Tevethia D. A. Thorley-Lawson C. P. Van Beveren J. L. Van Etten I. M. Verma L. E. Volkman E. K. Wagner R. L. Ward R. G. Webster W. S. M. Wold F. Wong-Staal



ACADEMIC PRESS, INC.

Harcourt Brace Jovanovich, Publishers
San Diego New York Boston
London Sydney Tokyo Toronto

Copyright © 1992 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (27 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1992 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0042-6822/92 \$5.00

MADE IN THE UNITED STATES OF AMERICA

This journal is printed on acid-free paper.

 ∞

Contents of Volume 188

Number 1, May 1992

Synthetic Peptides and Anti-peptide Antibodies as Probes to Study Interdomain Interactions Involved in Virus Assembly: The Envelope of the Human Immunodeficiency Virus (HIV-1)	A. R. Neurath, N. Strick, and S. Jiang	1
Evidence That the Amantadine-Induced, M2-Mediated Conversion of Influenza A Virus Hemagglutinin to the Low pH Conformation Occurs in an Acidic Trans Golgi Compartment	F. Ciampor, P. M. Bayley, M. V. Nermut, E. M. A. Hirst, R. J. Sugrue, and A. J. Hay	14
Cell-Specific Envelope Glycosylation Distinguishes FIV Glycoproteins Produced in Cytopathically and Noncytopathically Infected Cells	Mary L. Poss, Steven W. Dow, and Edward A. Hoover	25
Mechanism of Interferon Action: cDNA Structure, Expression, and Regulation of the Interferon-Induced, RNA-Dependent P1/eIF- 2α Protein Kinase from Human Cells	Daniel C. Thomis, James P. Doohan, and Charles E. Samuel	33
Mechanism of Interferon Action: Identification of a RNA Binding Domain within the N-terminal Region of the Human RNA-Dependent P1/elF-2 α Protein Kinase	Stephen J. McCormack, Daniel C. Thomis, and Charles E. Samuel	47
Evidence That Active Protection following Oral Immuniza- tion of Mice with Live Rotavirus Is Not Dependent on Neutralizing Antibody	Richard L. Ward, Monica M. McNeal, and John F. Sheridan	57
Genetic Manipulation of African Swine Fever Virus: Construction of Recombinant Viruses Expressing the β -Galactosidase Gene	Javier M. Rodríguez, Fernando Almazán, Eladio Viñuela, and Jose F. Rodriguez	67
Rotavirus VP3 Expressed in Insect Cells Possesses Guanylyltransferase Activity	Ming Liu, Nora M. Mattion, and Mary K. Estes	77
A Single Point Mutation of the Influenza C Virus Glycoprotein (HEF) Changes the Viral Receptor-Binding Activity	Sigrun Szepanski, H. J. Gross, R. Brossmer, HD. Klenk, and G. Herrler	85
Antigenic N to H Conversion of Poliovirus by a Monoclonal Antibody at Low Ionic Strength	I. Delaet, R. Vrijsen, and A. Boeyé	93
The Taiwanese Hepatitis C Virus Genome: Sequence Determination and Mapping the 5' Termini of Viral Genomic and Antigenomic RNA	Pei-Jer Chen, Meei-Hua Lin, Kuei-Fang Tai, Po- Cheng Liu, Chien-Ju Lin, and Ding-Shinn Chen	102
Expression of Authentic Vaccinia Virus-Specific and Inserted Viral and Cellular Genes under Control of an Early Vaccinia Virus Promoter Is Regulated Post-transcriptionally in Interferon-Treated Chick Embryo Fibroblasts	Hans Joachim Degen, Doris Blum, Joachim Grün, and Christoph Jungwirth	114
Characterization of Linker Insertion and Point Mutations in the NS-1 Gene of Minute Virus of Mice: Effects on DNA Replication and Transcriptional Activation Functions of NS-1	Mario H. Skiadopoulos, Ralph Salvino, Wey Liang Leong, and Emmanuel A. Faust	122

Genetic Variability of the Glycoprotein Genes of Current Wild-type Measles Isolates	Rota, and William J. Bellini	135
Monoclonal IgM Antibodies from Cytomegalovirus-Infected Mice Recognize the GlcNAc-Containing Receptor Determinant of Murine CMV as well as Neutralizing Anti-CMV IgG Antibodies	Rajeswari M. H. Ravindranath and Michael C. Graves	143
Altu-Cinv iga Altubodies	7	
Relationship of Bovine Herpesvirus 1 Immediate-Early, Early, and Late Gene Expression to Host Cellular Gene Transcription	B. S. Seal, C. A. Whetstone, T. J. Zamb, L. J. Bello, and W. C. Lawrence	152
Heterogeneity in Envelope Protein Sequence and N-Linked Glycosylation among Yellow Fever Virus Vaccine Strains	Paulo R. Post, Claudia N. D. Santos, Ricardo Carvalho, Ana C. R. Cruz, Charles M. Rice, and Ricardo Galler	160
Antigenic Structure of Transmissible Gastroenteritis Virus Nucleoprotein	J. M. Martín Alonso, M. Balbín, D. J. Garwes, L. Enjuanes, S. Gascón, and F. Parra	168
The Organization of Potato Virus X Coat Proteins in Virus Particles Studied by Tritium Planigraphy and Model Building	L. A. Baratova, N. I. Grebenshchikov, E. N. Dobrov, A. V. Gedrovich, I. A. Kashirin, A. V. Shishkov, A. V. Efimov, L. Järvekülg, Yu. L. Radavsky, and M. Saarma	175
A 585-bp Deletion Found in the Spleen Focus-Forming Virus (SFFV) <i>env</i> Gene Is Responsible for the Defective Intracellular Transport of SFFV gp52	Ranga V. Srinivas, Simon P. Tucker, David R. Kilpatrick, and Richard W. Compans	181
Prevalence and Distribution of Latent Simian Varicella Virus DNA in Monkey Ganglia	Ravi Mahalingam, Penny Clarke, Mary Wellish, Aud N. Dueland, Kenneth F. Soike, Donald H. Gilden, and Randall Cohrs	193
Characterization of the Major Capsid Protein and Cloning of Its Gene from Algal Virus PBCV-1	Michael V. Graves and Russel H. Meints	198
Replication of DHBV Genomes with Mutations at the Sites of Initiation of Minus- and Plus-Strand DNA Synthesis	Lynn D. Condreay, Tsung-Teh Wu, Carol E. Aldrich, Mari A. Delaney, Jesse Summers, Christoph Seeger, and William S. Mason	208
NYVAC: A Highly Attenuated Strain of Vaccinia Virus	James Tartaglia, Marion E. Perkus, Jill Taylor, Elizabeth K. Norton, Jean-Christophe Audonnet, William I. Cox, Stephen W. Davis, Johanna van der Hoeven, Bernard Meignier, Michel Riviere, Bernard Languet, and Enzo Paoletti	217
	a dietti	217
Identification of a Temperature-Sensitive Mutant of Vac- cinia Virus Defective in Late but Not Intermediate Gene Expression	Michael S. Carpenter and Aloysius M. DeLange	233
Characterization of a New Avian-like Influenza A Virus from Horses in China	Yuanji Guo, Min Wang, Yoshihiro Kawaoka, Owen Gorman, Toshihiro Ito, Takehiko Saito, and Robert G. Webster	245
Induction of a Mucosal Barrier to Bovine Herpesvirus 1 Rep- lication in Cattle	Barbara A. Israel, Renee Herber, Yi Gao, and Geoffrey J. Letchworth III	256

fection	Sugantha Govindarajan, and Michael M. C.	265
	Lai	200
Coronavirus Infects and Causes Demyelination in Primate Central Nervous System	Ronald S. Murray, Guang-Yun Cai, Kristen Hoel, JY. Zhang, Kenneth F. Soike, and Gary F. Cabirac	274
Immunogenicity and Antigenicity of Chimeric Picornaviruses Which Express Hepatitis A Virus (HAV) Peptide Sequences: Evidence for a Neutralization Domain near the Amino Terminus of VP1 of HAV	Stanley M. Lemon, Wendy Barclay, Morag Ferguson, Paula Murphy, Li Jing, Karen Burke, David Wood, Kersi Katrak, David Sangar, Philip D. Minor, and Jeffrey W. Almond	285
Analysis of Nucleotide Sequence of the Rightmost 43 kbp of Herpesvirus Saimiri (HVS) L-DNA: General Conserva- tion of Genetic Organization between HVS and Ep- stein-Barr Virus	John Nicholas, Keith R. Cameron, Heather Cole- man, Carol Newman, and Robert W. Honess	296
Activation of Second-Messenger Pathways Reactivates Latent Herpes Simplex Virus in Neuronal Cultures	R. L. Smith, L. I. Pizer, E. M. Johnson, Jr., and C. L. Wilcox	311
The E1B Transcription Map of the Enteric Adenovirus Type 41	Annika Allard and Göran Wadell	319
Full-Length Sequence of a Hepatitis C Virus Genome Hav- ing Poor Homology to Reported Isolates: Comparative Study of Four Distinct Genotypes	Hiroaki Okamoto, Kiyohiko Kurai, Shun-ichi Okada, Kayoko Yamamoto, Hisao Lizuka, Takeshi Tanaka, Satoko Fukuda, Fumio Tsuda, and Shunji Mishiro	331
Evidence for Involvement of a Ribosomal Leaky Scanning Mechanism in the Translation of the Hepatitis B Virus Pol Gene from the Viral Pregenome RNA	Ching-Gong Lin and Szecheng J. Lo	342
Short Commu	unications	
Preferential Ribosomal Scanning Is Involved in the Differential Synthesis of the Hepatitis B Viral Surface Antigens from Subgenomic Transcripts	Shih Yi Sheu and Szecheng J. Lo	353
Mapping of 5' Ends of Virion-Derived HBV DNA	J. A. Saldanha, Huang Qiu, H. C. Thomas, and J. Monjardino	358
Genetic Variation in Rotavirus Serotype 4 Subtypes	Kim Y. Green, Antonella Sarasini, Yuan Qian, and Giuseppe Gerna	362
Glucocorticoid-Dependent Transformation by Human Pap- illomavirus Type 16 E7 Coding and 3' Noncoding Se- quences	Alan Pater, Narasimhaswamy S. Belaguli, Humphrey A. R. Gardner, Alka Mithal, and Mary M. Pater	369
Wounding Acts as a Tumor Promoter in Chickens Inoculated with Avian Sarcoma Virus 17	Glenn M. Marshall, Luc Vanhamme, Wing-Yen Wong, Heyun Su, and Peter K. Vogt	373
Unregulated and Basal Transcriptional Activities of the Regulatory Sequence of the Type 18 Human Papillomavirus Genome in Transgenic Mice	Kong-Bung Choo, Kowit Yu Chong, Lip-Nyin Liew, Hey-Chi Hsu, and Winston T. K. Cheng	378

Antibody Response to Human Papillomavirus (HPV) Type 11 in Children with Juvenile-Onset Recurrent Respira- tory Papillomatosis (RRP)	william Bonnez, Haskins K. Kashima, Brigid Leventhal, Phoebe Mounts, Robert C. Rose, Richard C. Reichman, and Keerti V. Shah	384
tory rapmoniatosis (iiii)		
Comparative Analysis of Sequence Variation in gp116 and gp55 Components of Glycoprotein B of Human Cyto-	Sunwen Chou	388
megalovirus	4	
Natural HIV-1 NEF Accelerates Virus Replication in Primary Human Lymphocytes	Anthony de Ronde, Bep Klaver, Wilco Keulen, Lia Smit, and Jaap Goudsmit	391
Expression of the Protease Gene of Equine Infectious Anemia Virus in <i>Escherichia coli:</i> Formation of the Mature Processed Enzyme and Specific Cleavage of the Gag Precursor	Keith Rushlow, Xue-xian Peng, Ronald C. Montelaro, and Ding S. Shih	396
Coronavirus mRNA Synthesis: Identification of Novel Transcription Initiation Signals Which Are Differentially Regulated by Different Leader Sequences	Nicola La Monica, Kyoko Yokomori, and Michael M. C. Lai	402
Hemagglutinin Activation of Pathogenic Avian Influenza Viruses of Serotype H7 Requires the Protease Recognition Motif R-X-K/R-R	Martin Vey, Michaela Orlich, Sabine Adler, Hans-Dieter Klenk, Rudolf Rott, and Wolf- gang Garten	408
Errata Volume 182, Number 1 (1991): Elizabeth Paine, Juan Garcia, Ti "Limited Sequence Variation in Human T-Lymphotropic African Patients," pp. 111–123 Volume 185, Number 2 (1991): Leonard R. Bullas, Ali Reza Mos	Virus Type 1 Isolates from North American and	414
and Anthony J. Zuccarelli, "Salmonella Phage PSP3, And 918–921		414
Author Index for Volume 188, Number 1		415
Number 2, Jo	une 1992	
Minirevi	ew	
Gene Expression of Vesicular Stomatitis Virus Genome RNA	Amiya K. Banerjee and Sailen Barik	417
Regular Ar	ticles	
Biologically Active Cymbidium Ringspot Virus Satellite RNA in Transgenic Plants Suppresses Accumulation of DI RNA	Luisa Rubino, James C. Carrington, and Marcello Russo	429
Molecular Mechanisms of Visna Virus Tat: Identification of the Targets for Transcriptional Activation and Evidence for a Post-transcriptional Effect	S. L. Gdovin and J. E. Clements	438
Extrachromosomal Human Immunodeficiency Virus Type 1 Sequences Are Methylated in Latently Infected U937 Cells	Mandaleshwar K. Singh and C. David Pauza	451
Identification of Amino Acid Residues Critical for Endonu- clease and Integration Activities of HIV-1 IN Protein in	Meera Drelich, Roland Wilhelm, and Jan Mous	459

plex Virus Type-1 (HSV-1) Protects Mice against Lethal Intraperitoneal and Lethal Ocular HSV-1 Challenge	burn, Susan Slanina, and Steven L. Wechsler	469
Studies on Compartmentation and Turnover of Murine Retrovirus Envelope Proteins	Y. Yu and P. K. Y. Wong	477
A 12,500 MW Protein Is Coded by Region E3 of Adenovirus	Lynda K. Hawkins and William S. M. Wold	486
Cloning, Sequencing, and Overexpression of Gene 16 of Salmonella Bacteriophage P22	Bettina Umlauf and Brigitte Dreiseikelmann	495
Rapid in Vivo Induction of HIV-Specific CD8 ⁺ Cytotoxic T Lymphocytes by a 15-Amino Acid Unmodified Free Peptide from the Immunodominant V3-Loop of GP120	K. J. Sastry, P. N. Nehete, S. Venkatnarayanan, J. Morkowski, C. D. Platsoucas, and R. B. Arlinghaus	502
Synthesis and Processing of the Influenza Virus Neuramini- dase, a Type II Transmembrane Glycoprotein	Brenda G. Hogue and Debi P. Nayak	510
An Isoform Variant of the Cytomegalovirus Immediate— Early Auto Repressor Functions as a Transcriptional Activator	Edgardo Baracchini, Emilia Glezer, Kenneth Fish, Richard M. Stenberg, Jay A. Nelson, and Peter Ghazal	518
Epitopic Mapping of Linear and Conformation-Dependent Antigenic Determinants on GP5 of Five U.S. Bluetongue Viruses	Yi-Yuan Yang, Todd M. Johnson, James O. Me- cham, James P. Tam, and Joseph KK. Li	530
CPF-DD Is an Inhibitor of Infection by Human Immunodefi- ciency Virus and Other Enveloped Viruses in Vitro	John P. Moore, Guy Simpson, Jane A. McKeat- ing, Steven J. Burakoff, Stuart L. Schreiber, and Robin A. Weiss	537
Open Reading Frames Encoding a Protein Kinase, Homolog of Glycoprotein gX of Pseudorabies Virus, and a Novel Glycoprotein Map within the Unique Short Segment of Equine Herpesvirus Type 1	Clarence F. Colle III, C. Clay Flowers, and Dennis J. O'Callaghan	545
Structure and Pathogenicity of Individual Variants within an Immunodeficiency Disease-Inducing Isolate of FeLV	J. Overbaugh, E. A. Hoover, J. I. Mullins, D. P. W. Burns, L. Rudensey, S. L. Quackenbush, V. Stallard, and P. R. Donahue	558
The E3-14.5K Integral Membrane Protein of Adenovirus That Is Required for Down-Regulation of the EGF Re- ceptor and for Prevention of TNF Cytolysis Is O-Glyco- sylated but Not N-Glycosylated	Peter Krajcsi, Ann E. Tollefson, and William S. M. Wold	570
Molecular Cloning, Sequence Analysis, in Vitro Expression, and Immunoprecipitation of the Major Inner Capsid Protein of the IDIR Strain of Group B Rotavirus (GBR)	Joseph J. Eiden, James Nataro, Steven Vonder- fecht, and Martin Petric	580
RNA Packaging Signal of Human Immunodeficiency Virus Type 1	Takuma Hayashi, Tatsuo Shioda, Yoichiro Iwa- kura, and Hiroshi Shibuta	590
Generation of Reassortants between African Arenaviruses	I. S. Lukashevich	600
Stepwise Phosphorylation of Vesicular Stomatitis Virus P Protein by Virion-Associated Kinases and Uncoupling of Second Step from in Vitro Transcription	J. David Beckes and Jacques Perrault	606

Region	Antonella Caputo and William A. Haseitine	010
Activated, HTLV-1-Specific Cytotoxic T-Lymphocytes Are Found in Healthy Seropositives as well as in Patients with Tropical Spastic Paraparesis	Claire E. Parker, Susan Daenke, Simon Nightingale, and Charles R. M. Bangham	628
Role of the Host Cell Nucleus in the Replication of African Swine Fever Virus DNA	R. García-Beato, M. L. Salas, E. Viñuela, and J. Salas	637
Abrogation of IL-2 Dependence by Recombinant Murine Retrovirus Containing v-myb	Faina V. Rose and E. Premkumar Reddy	650
The Helminthosporium victoriae 190S Mycovirus Has Two Forms Distinguishable by Capsid Protein Composition and Phosphorylation State	Said A. Ghabrial and Wendy M. Havens	657
TGEV Corona Virus ORF4 Encodes a Membrane Protein That Is Incorporated into Virions	Murielle Godet, Rene L'Haridon, Jean-Francois Vautherot, and Hubert Laude	666
Immunocytochemical Localization of Capsid-Related Particles in Subcellular Fractions of Poliovirus-Infected Cells	Thomas Pfister, Luis Pasamontes, Monica Troxler, Denise Egger, and Kurt Bienz	676
Initiation of Translation of Human Rhinovirus RNA: Mapping the Internal Ribosome Entry Site	Andrew Borman and Richard J. Jackson	685
Proteolytic Processing of the Plum Pox Potyvirus Polyprotein by the NIa Protease at a Novel Cleavage Site	Juan Antonio García, María Teresa Martín, María Teresa Cervera, and José Luis Riechmann	697
Identification and Characterization of an Equine Herpes- virus 1 Late Gene Encoding a Potential Zinc Finger	V. Roger Holden, Ramana R. Yalamanchili, Ron- ald N. Harty, and Dennis J. O'Callaghan	704
Mice Immunized with a Subviral Particle Containing the Jap- anese Encephalitis Virus prM/M and E Proteins Are Protected from Lethal JEV Infection	Eiji Konishi, Steven Pincus, Enzo Paoletti, Robert E. Shope, Thomas Burrage, and Peter W. Mason	714
The DNA Polymerase Gene from Chlorella Viruses PBCV-1 and NY-2A Contains an Intron with Nuclear Splicing Sequences	Reingard Grabherr, Peter Strasser, and James L. Van Etten	721
The M RNA of Impatiens Necrotic Spot <i>Tospovirus</i> (Bunyaviridae) Has an Ambisense Genomic Organization	M. D. Law, J. Speck, and J. W. Moyer	732
Requirement for ICR-like Sequences in the Replication of Brome Mosaic Virus Genomic RNA	Gregory P. Pogue, Loren E. Marsh, James P. Connell, and Timothy C. Hall	742
HTLV-I Tax Is a Zinc-Binding Protein: Role of Zinc in Tax Structure and Function	Oliver J. Semmes and Kuan-Teh Jeang	754
Alterations within pp59 ^{v-rel} -Containing Protein Complexes following the Stimulation of REV-T-Transformed Lymphoid Cells with Zinc	Robert W. Storms and Henry R. Bose, Jr	765
Isolation of the Avian Transforming Retrovirus, AS42, Carrying the v-maf Oncogene and Initial Characteriza- tion of Its Gene Product	Sadaaki Kawai, Naoaki Goto, Kohsuke Kataoka, Tomoki Saegusa, Hideko Shinno-Kohno, and Makoto Nishizawa	778

Isolation and Characterization of a Retrovirus from the Fish Genus Xiphophorus	Harald Petry, Kerstin Petry, Markus Schmidt, Gerhard Hunsmann, Fritz Anders, and Wolfgang Lüke	785
Persistent Infection of Human Adenovirus Type 5 in Human Monocyte Cell Lines	Y. Chu, K. Sperber, L. Mayer, and MT. Hsu	793
A Constitutively Expressed Vaccinia Gene Encodes a 42- kDa Glycoprotein Related to Complement Control Fac- tors That Forms Part of the Extracellular Virus Enve- lope	Maiken Engelstad, Susan T. Howard, and Geoffrey L. Smith	801
Absence of Selection of HIV-1 Variants in Vivo Based on Transcription/Transactivation during Progression to AIDS	Sylvie Delassus, Andreas Meyerhans, Rémi Cheynier, and Simon Wain-Hobson	811
Characterization of the Hepatitis C Virus E2/NS1 Gene Product Expressed in Mammalian Cells	Richard R. Spaete, D'Anna Alexander, Mary E. Rugroden, Qui-Lim Choo, Kim Berger, Kevin Crawford, Carol Kuo, Song Leng, Cindy Lee, Robert Ralston, Kent Thudium, James W. Tung, George Kuo, and Michael Houghton	819
The Polarity Suppression Factor of Bacteriophage P4 Is also a Decoration Protein of the P4 Capsid	Morten L. Isaksen, Svein T. Rishovd, Richard Calendar, and Bjørn H. Lindqvist	831
Replication of HIV-1 and HIV-2 in Human Bone Marrow Cultures	Barbara J. Potts, M. David Hoggan, Lajos Lamperth, and Jerry Spivak	840
Short Commun	nications	
Isolation and Characterization of a Highly Divergent HIV- 2[GH-2]: Generation of an Infectious Molecular Clone and Functional Analysis of Its rev-Responsive Element in Response to Primate Retrovirus Transactivators (Rev and Rex)	Meiko Kawamura, Jun Katahira, Masashi Fukasawa, Jun-ichi Sakuragi, Koh-ichi Ishikawa, Masuyo Nakai, Julius A. A. Mingle, Mubarak Osei-Kwasi, Victor B. A. Netty, Hirofumi Akari, Osamu Hishida, Keizo Tomonaga, Tomoyuki Miura, and Masanori Hayami	850
Influenza Viruses Differ in Recognition of 4-O-Acetyl Substitution of Sialic Acid Receptor Determinant	M. N. Matrosovich, A. S. Gambaryan, and M. P. Chumakov	854
Infection of the HTLV-I-Harbouring T-lymphoblastoid Line MT-2 by Epstein-Barr Virus	Shigeki Koizumi, Xian-Kui Zhang, Shosuke Imai, Makoto Sugiura, Norio Usui, and Toyoro Osato	859
Virus-Cell Membrane Fusion Does Not Predict Efficient In- fection of Alveolar Macrophages by Human Immunode- ficiency Virus Type 1 (HIV-1)	Mary Jane Potash, Michael Zeira, Zheng-Bo Huang, Tillman E. Pearce, Edward Eden, Howard E. Gendelman, and David J. Volsky	864
Retroviral Envelope Protein Fusions to Secreted and Membrane Markers	M. Catherine Mace, Mark Hansen, Sam Whiting, Chin-Tien Wang, and Eric Barklis	869
Cloning and Sequence Analysis of the Genes Encoding the Nonstructural Proteins of Langat Virus and Compara- tive Analysis with other Flaviviruses	Lauren C. Iacono-Connors and Connie S. Schmaljohn	875
Characterization of the Avian Adenovirus Penton Base	Michael Sheppard and Halina Trist	881
Cloning, Sequence, and Overexpression of Bacteriophage T4 Gene 51	Rimas Nivinskas, Rita Vaiškunaite, Ramune Dagyte, Ausra Raudonikiene, and Vytautas Klausa	887

Sequence Analysis of the Hepatitis B Virus Pre-C Region in Hepatocellular Carcinoma [HCC] and Nontumoral Liver Tissues from HCC Patients	Aldo Manzin, Stefano Menzo, Patrizia Bagnar- elli, Pietro E. Varaldo, Italo Bearzi, Guido Carloni, Francis Galibert, and Massimo Cle- menti	890
Nucleic Acid-Binding Properties of the Alfalfa Mosaic Virus Movement Protein Produced in Yeast	Fabrice Schoumacher, Claude Erny, Anne Berna, Therese Godefroy-Colburn, and Christiane Stussi-Garaud	896
Resistance of Human Immunodeficiency Virus Type 1 Reverse Transcriptase to TIBO Derivatives Induced by Site-Directed Mutagenesis	Karen de Vreese, Zeger Debyser, Anne-Mieke Vandamme, Rudi Pauwels, Jan Desmyter, Erik de Clercq, and Jozef Anné	900
Regulation of the Activities of African Cassava Mosaic Virus Promoters by the AC1, AC2, and AC3 Gene Prod- ucts	Ann Haley, Xiangcan Zhan, Kim Richardson, Kylie Head, and Bret Morris	905
Subacute Sclerosing Panencephalitis Is Typically Characterized by Alterations in the Fusion Protein Cytoplasmic Domain of the Persisting Measles Virus	Anita Schmid, Pius Spielhofer, Roberto Cattaneo, Knut Baczko, Volker ter Meulen, and Martin A. Billeter	910
Phosphorylation of the Epstein-Barr Virus BZLF1 Immediate-Early Gene Product ZEBRA	Masanori Daibata, Robert E. Humphreys, and Takeshi Sairenji	916
Protective Role of Cytotoxic Lymphocytes against Murine Leukemia Virus-Induced Neurologic Disease and Immu- nodeficiency Is Enhanced by the Presence of Helper T Cells	Kunal Saha and P. K. Y. Wong	921
Molecular Cloning and Sequence Analysis of the Mumps Virus Gene Encoding the L Protein and the Trailer Se- quence	Kazuko Okazaki, Kiyoshi Tanabayashi, Kaoru Ta- keuchi, Michiko Hishiyama, Katsunori Oka- zaki, and Akio Yamada	926
Vaccinia Virus-Mediated Inhibition of Host Protein Synthesis Involves Neither Degradation nor Underphosphorylation of Components of the Cap-Binding Eukaryotic Translation Initiation Factor Complex eIF-4F	Barbara S. Schnierle and Bernard Moss	931
The Eukaryotic Translation Initiation Factor 4E Is Not Modified during the Course of Vaccinia Virus Replication	Todd M. Gierman, Robert M. Frederickson, Nahum Sonenberg, and David J. Pickup	934
A Gene Homologous to Topoisomerase II in African Swine Fever Virus	R. García-Beato, J. M. P. Freije, C. López-Otín, R. Blasco, E. Viñuela, and M. L. Salas	938
Hepatitus B Virus Genomes that Cannot Synthesize Pre-S2 Proteins Occur Frequently and as Dominant Virus Populations in Chronic Carriers in Italy	Teresa Santantonio, Maria-Christina Jung, Ralf Schneider, Doris Fernholz, Michele Milella, Laura Monno, Giuseppe Pastore, Gerd R. Pape, and Hans Will	948
Full-Length cDNA Sequence of Dengue Type 1 Virus (Singapore Strain S275/90)	Jianlin Fu, Boon-Huan Tan, Eu-Hian Yap, Yow- Cheong Chan, and Y. H. Tan	953
Erratum Volume 186, Number 2 (1992): Lynn Rasmussen, John D. Gre Bovine Immunodeficiency-Like Virus Envelope Glycopr Cells," pp. 551–561	oteins by a Recombinant Baculovirus in Insect	959
Author Index for Volume 188		960
Subject Index for Volume 188		963